

WHAT IS CLAIMED IS

1. In a process for depositing powdered phosphor on a surface, the improvement comprising:
using vacuum deposition to deposit the powdered phosphor.
2. The improvement of Claim 1, wherein the vacuum deposition is carried out using heated powdered phosphor.
3. The improvement of Claim 2, wherein the heated powdered phosphor is resistively heated to a temperature in the range of 350° to 600°C.
4. The improvement of Claim 1, wherein the powdered phosphor is deposited to a thickness of 2,500 to 10,000 Angstroms.
5. The improvement of Claim 1, wherein the vacuum deposition is carried out at a pressure of 1×10^{-4} to 1×10^{-7} Torr.
6. The improvement of Claim 1, additionally including annealing the vacuum deposited powdered phosphor surface.
7. The improvement of Claim 6, wherein the annealing is carried out at a temperature of 400° to 600°C for a time period of 15 min. to 2 hours.

8. The improvement of Claim 6, wherein the annealing is carried to so as to produce a phosphor surface having a smoothness in the range of 10nm to 30nm.

9. The improvement of Claim 6, additionally including depositing a coating on the annealed phosphor surface selected from the group consisting of aluminum, gold and silver.

10. The improvement of Claim 9, wherein the coating is aluminum deposited to a thickness of 400 to 1000 Angstroms.

11. The improvement of Claim 1, additionally including providing the powdered phosphor having a composition consisting of Zn, CD, (S).

12. The improvement of Claim 11, additionally including placing the powdered phosphor in a tantalum boat, and resistively heating the powdered phosphor.

13. A resistive heating vacuum deposition process to deposit powdered phosphor, comprising:

providing a quantity of powdered phosphor, placing the powdered phosphor in a tantalum boat,

resistively heating the powdered phosphor,

depositing by vacuum deposition the heated powdered phosphor on a surface, and

annealing the deposited powdered phosphor.

14. The process of Claim 13, additionally including depositing a coating of a selected metal on the annealed phosphor surface.

15. The process of Claim 13, additionally including supplying the quantity of powdered phosphor from a powdered phosphor comprising Zn, CD, (S).

16. The process of Claim 13, wherein resistively heating the powdered phosphor is carried out in a temperature range of 350° to 600°C.

17. The process of Claim 13, wherein the vacuum deposition is carried out at a pressure of 1×10^{-4} to 1×10^{-7} .

18. The process of Claim 13, wherein the powdered phosphor is deposited to a thickness of 2,500 to 10,000 Angstroms.

19. The process of Claim 13, wherein the annealing is carried out at a temperature of 400° to 600°C for a time period of 15 min. to 2 hours.

20. The process of Claim 13, wherein the annealing produced a phosphor surface having a smoothness in the range of 10nm to 30nm.

21. The process of Claim 14, wherein the coating of a selected metal is composed of metals selected from the group consisting of aluminum, gold and silver.

22. The process of Claim 21, wherein the selected metal is composed of aluminum with a thickness in the range of 400 to 1000 Angstroms.